

Appl. No. 09/453,387
Amdt. Dated November 13, 2003
Reply to Office Action of August 13, 2003

PATENT

REMARKS/ARGUMENTS

Claims 1, 3, 5, 8-11, 13, 15 and 17-19 are pending in the application. Claims 1, 8-11 and 17-19 are rejected. Claims 3, 5, 13 and 15 are objected to. Claims 1 and 11 have been amended. Entry of the amendment is respectfully requested.

The Applicant gratefully acknowledges the last interview which was granted by the Examiner on August 27, 2003.

The Amendment

Claims 1 and 11 have been amended. All amended claims are supported by the application as filed. No new matter was added by this amendment.

Claims 1 and 11 have been amended to delete the reference to a polynucleotide comprising a sequence that is at least 80% identical to SEQ ID NO: 1. Claims 1 and 11 have further been amended to specify that the cotton MYB polypeptide has at least 95% identity to SEQ ID NO: 2, wherein the cotton MYB polypeptide increases cotton fiber quality and yield.

Support for this amendment can be found on page 4, lines 29-34 and page 5, lines 10-15 as well as on page 12, line 11 and page 35, lines 4-5.

Rejections under 35 U.S.C. §112

Claims 1, 8-11, and 17-19 are still rejected under 35 U.S.C. §112, first paragraph, as allegedly lacking enablement.

The Examiner indicates that the specification is enabling for claims limited to an isolated *Gossypium hirsutum* cDNA GhMYB1 of SEQ ID NO: 1 encoding SEQ ID NO: 2 and *Arabidopsis* and tobacco plants transform comprising these sequences, but maintains that one of skill in the art would not be able to identify transcription factors within the scope of the claims that would modify transcription in transgenic plants in the same manner as the exemplified sequences. The Examiner further asserts that Applicant has taught that GhMYB1 and the orthologous sequence from *Gossypium arboreum* (i.e., GaMYB1) exhibit 98% amino acid

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sequence identity in the region of the DBD, when compared to one another; and it is not only the DBD that facilitates the specific function of each MYB transcription factor but also other regions of the protein that enable the transcription factor to carry out its function. Finally, the Examiner contends that Applicant has not taught which regions, aside from the DBD are important for the proper activity of the claimed transcription factor.

To the extent that the rejection applies to the claims as amended, Applicant respectfully traverses the rejection. The amendment was made to advance the claims toward allowance and must not be construed as an acquiescence in the rejection. Applicant now claims a method of modulating transcription in a cotton plant comprising introducing into the cotton plant a recombinant expression cassette comprising a promoter sequence operably linked to a polynucleotide sequence encoding a cotton MYB polypeptide having at least 95% identity to SEQ ID NO: 2, wherein the cotton MYB polypeptide increases cotton fiber quality and yield.

Applicant respectfully clarifies that GhMYB1 and GaMYB1 exhibit 98% amino acid sequence identity over the entire length of the amino acid sequence (which includes the region of the DBD), when compared to one another. As was stated in the Wilkins Declaration on page 5 (see declaration which was filed with the Amendment on May 29, 2003), sequence alignment of GhMYB1 and GaMYB1 shows a 98% amino acid match across the entire protein and in the highly conserved DNA-Binding-Domain of the two polypeptides. The amino acid alignment of GhMYB1 and GaMYB1 is shown in Exhibit 2 (attached to the Wilkins Declaration) which shows the total length of the subject protein (GhMYB1) to be 294 amino acids when compared to the query (GaMYB1) in the alignment. The Examiner's assertion that the 98% amino acid sequence identity is only exhibited in the region of the DBD is not correct. Rather, the 98% amino acid sequence identity ranges over the entire length of the compared amino acid sequences. Consequently, the 98% amino acid sequence identity between GhMYB1 and GaMYB1 indicates that the sequences are orthologs. From this evidence, it is clear, that it would require merely routine experimentation, if any, to identify MYB1 transcription factors within the scope of the claims.

As explained during several interviews and in the previous amendment, the present specification teaches the highly conserved structural similarities between the claimed

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cotton MYB transcription factors and other known plant MYB transcription factors from different species. The specification also teaches a method of determining whether a plant was transformed with a MYB nucleic acid by determining fiber qualities. Accordingly, the teachings of the specification, in combination with the level of skill in the art, enable the skilled practitioner to identify MYB polypeptides of the present invention and to express them in transgenic cotton plants.

In light of the foregoing amendment and remarks, Applicant respectfully requests withdrawal of the rejection of claims 1, 8-11 and 17-19 under 35 U.S.C. §112, first paragraph.

Claims 1, 8-11 and 17-19 are still rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to the skilled artisan that the inventor had possession of the claimed invention.

The Examiner contends that having disclosed two orthologous sequences sharing 80% sequence identity with each other would not satisfy the written description requirement for claims drawn to sequences that exhibit at least 80% sequence identity with SEQ ID NO: 1; and that given the lack of disclosed domains characteristic of the MYB1 transcription factor, one skilled in the art would not be able to predict the structure of other sequences within the claimed genus.

Applicant respectfully traverses the rejection to the extent that the rejection applies to the claims as amended. As indicated above, Applicant now claims a method of modulating transcription in a cotton plant comprising introducing into the cotton plant a recombinant expression cassette comprising a promoter sequence operably linked to a polynucleotide sequence encoding a cotton MYB polypeptide having at least 95% identity to SEQ ID NO: 2, wherein the cotton MYB polypeptide increases cotton fiber quality and yield.

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An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to *recognize* that he or she invented what is claimed."¹

Applicant has clearly established structure and function of a cotton MYB1 gene and resulting protein (GhMYB1) as was discussed at length in the previous amendment. In addition, a second cotton MYB1 species (GaMYB1) was identified. Notably, Applicant has described the structure and function of GhMYB1 as well as GaMYB1, wherein GaMYB1 shares **98% amino acid homology** with GhMYB1. Thus, there is no conceivable reason why one skilled in the art would have difficulty recognizing a cotton MYB polypeptide having at least 95% identity to SEQ ID NO: 2. In fact, the burden remains with the Examiner to provide credible reasons or evidence to why the skilled artisan would still not be able to recognize the features that identify a cotton MYB polypeptide, including a cotton MYB polypeptide having at least 95% identity to SEQ ID NO: 2.

In light of the foregoing amendment and remarks, Applicant respectfully requests withdrawal of the rejection of claims 1, 8-11 and 17-19 under 35 U.S.C. §112, first paragraph.

Claims 3, 5, 13 and 15 are objected for being dependent on a rejected base claim and would be allowable if rewritten to not be dependent on rejected claims.

Claims 3 and 5 depend on amended claim 1; claims 13 and 15 depend on amended claim 11. In light of the amendment, this rejection should be moot.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.


¹ *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). See also MPEP 2163.02.

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If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,


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Attachments
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